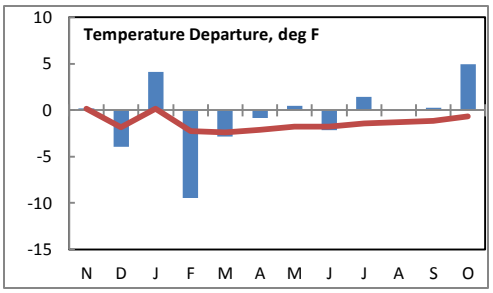
Montana Weather/Precipitation Summary

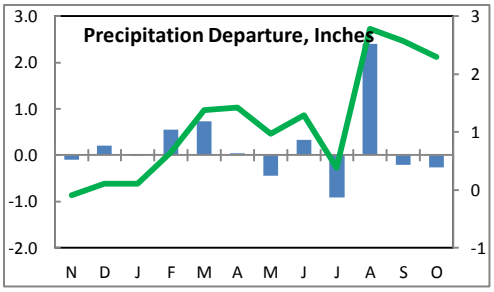
October 2014 by NOAA's National Weather Service Great Falls Montana

Temperatures averaged a above normal across the state in October. Normally, flow aloft averages almost due westerly this month. There was a slightly stronger than normal ridge, with west-northwest flow aloft.

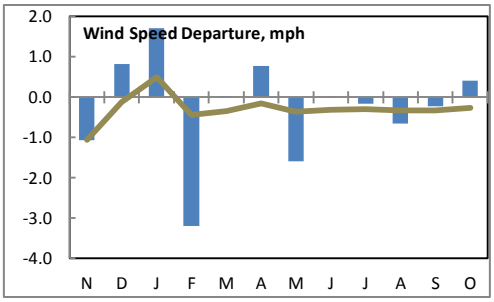
Statewide composite temperatures averaged 5.0°F above normal for the month. Figure 2 shows the areas of temperature anomalies. The temperature anomalies ranged from +0.8°F at Hot Springs to +7.2°F at Lewistown. The warmest average monthly temperature was 55.9°F at Yellowtail Dam, and the coolest was 36.9°F at Yellow Mule. For the past 12-months, the statewide composite average temperature is 0.6°F below normal. Seven of the past 12 months have recorded temperature averages below normal.



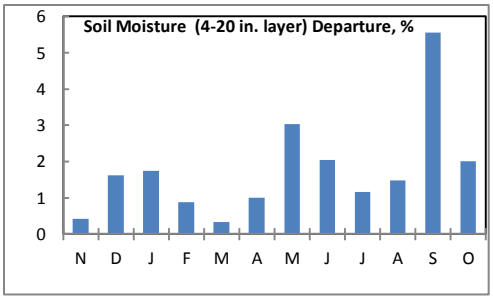
The monthly departure from normal for precipitation across Montana is shown in Figure 3. Below normal conditions persisted across much of the state, with pockets of above normal over the hi-line and portions of the southwest. The highest amount was 4.58 inches near Noxon. Overall, October averaged 0.78-inches, or 0.27-inches below normal. The statewide composite precipitation for the past 12 months is 2.30-inches above normal. Snowfall was generally light across the state. The heaviest amount was 19.4 inches at Mystic Lake. Otherwise trace amounts were common.



On a statewide basis, winds averaged above normal this month. This was the 33rd windiest October of record. The statewide composite average was 9.1 mph (0.4-mph above normal), with the 12-month average running 0.3-mph below average. The fastest average speed was 22.0 mph at Deep Creek RAWS, while A location near Whitlash recorded an average of 16.2 mph. The fastest measured gust of the month, 111 mph, occurred at Snowslip on the 1st.



After a generally wet September, soil moisture conditions continued at an above normal state in October. Soil moisture values were two points above normal, which is the fourth highest of record, and the wettest since 2010.



Refer to NCDC's State of the Climate report for the latest monthly discussion: http://www.ncdc.noaa.gov/sotc/.

Oct 1-3

October started out a little cooler than normal. Low temperatures bottomed out at 10°F near Mystic Lake on the third, with maximum temperatures in the 40s on the second. Some snow fell over the central third of the state. Heart Butte received 6.6 inches, Red Lodge had 2 inches and Great Falls 1.1 inches of snow.

Oct 4-26

Above normal conditions dominated most of October. Record high temperatures were seen at Missoula and Kalispell on the 7th. Plains reached 84°F. A cold front brought windy conditions on

the 11th, with gusts reaching 58 mph at Huntley. Over the 11th and 12th, rain fell across western and southern Montana. Swan Lake received 0.90-inches, while Fishtail and Pompey's Pillar picked up about one-half inch of rain. Windy conditions returned and on the 14th, gusts reached 65 mph at Livingston. More widespread windy conditions were observed on the 16th as a cold front pushed across the state. A thunderstorm caused gusts to 63 mph near Augusta. Hodges (Dawson) had a gust of 58 mph, while gusts reached 71 mph at Norris Hill and 64 mph at West Yellowstone. As winds decreased and skies cleared, Wisdom reported a low temperature of 11°F on the 17th. By the 20th, record high temperatures were again seen over western and central Montana. Cut Bank reached 78°F and Havre peaked at 81°F. Loma reported the warmest temperature, reaching 85°F. A cold front pushed across the state on the 21st. Thunderstorms along the front caused wind gusts to 58 mph at Lewistown. Meanwhile heavy precipitation fell in western Montana. Moss Peak (Lake) picked up 1.5-inches of precipitation. Winds returned on the 26th, with gusts to 73 mph at Two Medicine and Deep Creek.

Oct 27-31
On the 27th, a disturbance in northwest flow brought up to 10 inches of snow to the region surrounding the Bears Paw Mountains. Other snow fell over the higher elevations in the Sweet Grass Hills. October ended very warm, with several locations across southwest Montana setting new daily extremes for the date. The warmest was 74F at Livingston.

Precipitation/convection

Severe convective weather occurred on one day in October. Normal for October is less than one day.

October summary information:

High Temperature	85°F at Stevensville (7th) & Loma (20th)	**Greatest Precip**	4.58" near Noxon
Low Temperature	2°F at Big Sky (24th)		8.40" at Poorman SNOTEL (Lincoln)
Warmest Ave Temp	55.9°F at Yellowtail Dam	**Peak Wind Gust**	111 mph at Snow Slip (1st)
Coolest Ave Temp	36.9°F at Yellow Mule		73 mph at Two Medicine (26th)
Range of Temp departures	+0.8°F at Hot Springs to +7.2°F at Lewistown	**Highest Ave Wind**	16.2 mph near Whitlash 22.0 mph at Deep Creek
21 city mean monthly Temperature/Normal	48.8/43.8F 5.0F above normal. 15th warmest of record (since 1880). 87th percentile. Jan-Oct 46.4/46.8 0.4F below normal. 65th warmest of record.	**20 city mean monthly wind speed/Normal**	9.1 mph/8.7 mph; 33rd windiest of record (since 1936). 56th percentile. Jan-Oct 9.0 mph/9.3 0.3-mph below normal. 27th calmest of record.
22 city mean monthly precipitation/Normal	0.78/1.05" – 74% of normal. 41st driest of record (since 1880). 30th percentile Jan-Oct 15.71"/13.52" – 2.19" above normal. 12th wettest of record.		

Historical Rank of Precipitation (inches)
for the Current Month and Water Year to Date

Location	Oct	% of Norm	Rank	Pcntl	Oct 1 - 31	% of norm	Rank	Pcntl	Years
Baker	0.26	22%			0.26	22%			17
Billings	0.16	13%	12	10	0.16	13%	12	10	114
Belgrade	0.39	35%	11	13	0.39	35%	11	13	78
Butte	0.83	106%	76	63	0.83	106%	75	62	121
Cut Bank	0.27	61%	42	38	0.27	61%	42	38	108
Dillon	0.26	38%	19	24	0.26	38%	19	24	75
Glasgow	0.41	55%	49	41	0.41	55%	49	41	118
Great Falls	0.47	55%	40	32	0.47	55%	40	32	123
Havre	0.76	131%	89	66	0.76	131%	89	66	135
Helena	0.40	59%	52	38	0.40	59%	52	38	135
Jordan	0.12	13%			0.12	13%			18
Kalispell	1.19	118%	79	65	1.19	118%	79	65	121
Lewistown	0.86	76%	48	40	0.86	76%	48	40	119
Livingston	0.29	23%	8	6	0.29	23%	8	6	112
Miles City	0.43	47%	43	31	0.43	47%	43	31	138
Missoula	1.16	129%	90	66	1.16	129%	89	66	135
Mullan Pass	3.60	117%	46	61	3.60	117%	46	61	75
Wolf Point	0.27	33%			0.27	33%			17
Glendive	0.92	87%	80	67	0.92	87%	80	68	118
Sidney	1.10	100%	50	66	1.10	100%	50	66	75
BZN-MSU	1.72	100%	91	67	1.72	100%	90	66	136

Rankings and Percentiles are 1=driest, higher numbers=wetter.
For an automated version of this chart, updated daily, go to
http://www.wrh.noaa.gov/tfx/dx.php?wfo=tfx&type=&loc=products&fx=PCPNTOTALS

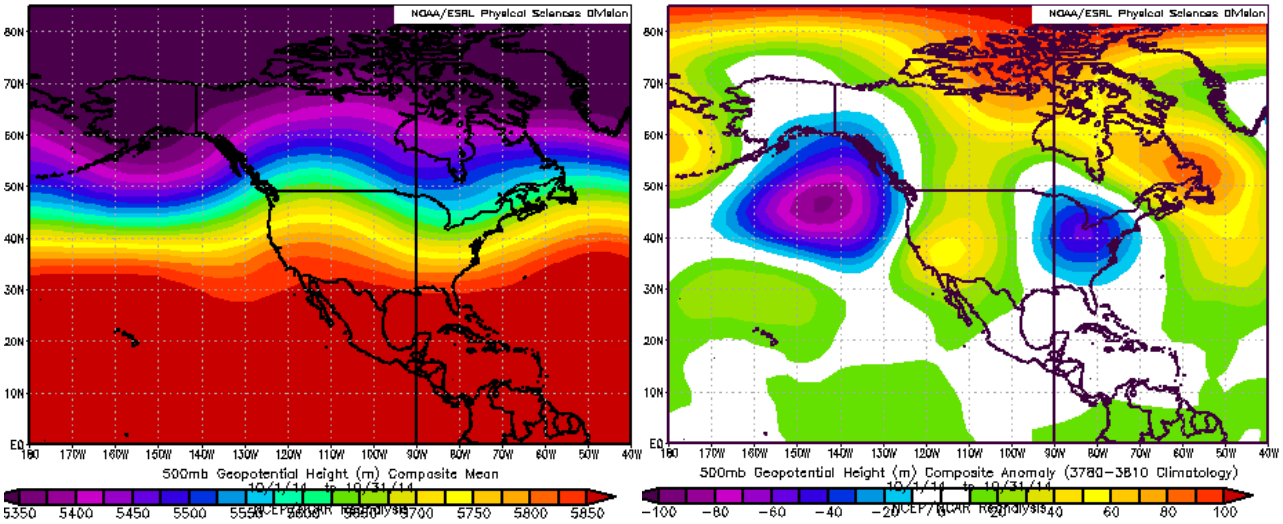


Figure 1. Mean flow at 500 millibars (~18,000 ft) for this month (top-left) and departure from normal (top-right).

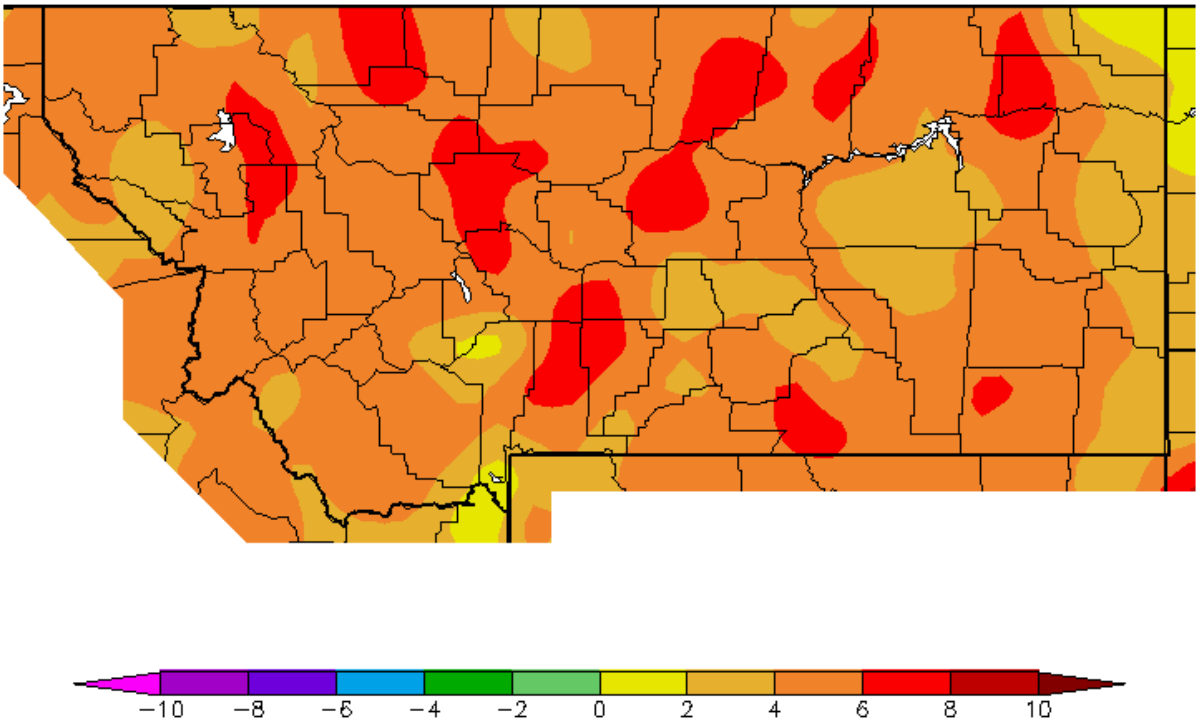


Figure 2. October 2014 temperature departures from normal (°F) (Western Region Climate Center).

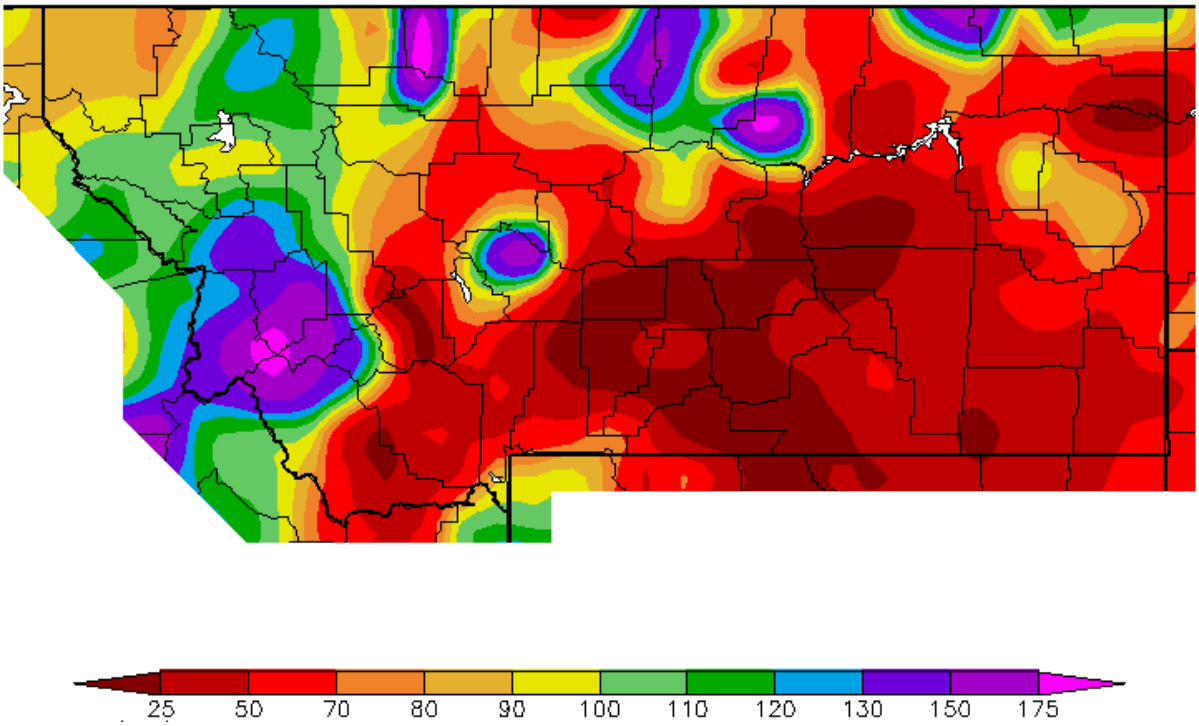


Figure 3. October 2014 precipitation departures from normal (percent) (Western Region Climate Center).

For a state map of % of normal water year precipitation (updated around the 7th of each month), go to: http://www.wrh.noaa.gov/tfx/climate/monthlysum/climatesum.php?wfo=tfx

For the latest information on mountain snowpack from the NRCS, go to: http://www3.wcc.nrcs.usda.gov/snow/index.html

For the latest U.S. Drought Monitor, issued weekly by the National Drought Mitigation Center, USDA and NOAA, go to: http://droughtmonitor.unl.edu/

These data are preliminary and have not undergone final QC by NCDC. Therefore, these data are subject to revision. Final and certified climate data can be access at the National Climatic Data Center (NCDC) http://www.ncdc.noaa.gov. Many more links are on the Drought Information Page of the NWS Great Falls web site at http://www.wrh.noaa.gov/tfx/main/drought.php?wfo=tfx. The climatological record for normals is 1981-2010. The ranking period for temperature, precipitation and snowfall is since 1880. The ranking period for wind speeds is since 1936. The ranking period for soil moisture is since 1995.